

RANCHO SANTA ANA BOTANIC GARDEN
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PINUS RADIATA
MONTEREY PINE

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RANCHO SANTA ANA BOTANIC GARDEN
of the
NATIVE PLANTS OF CALIFORNIA
Santa Ana Cañon, Orange County, California
Established 1927 in Memory of
JOHN W. BIXBY

PINUS RADIATA
MONTEREY PINE

Pinaceae

Pine Family

Shapely tree 30-100 ft. high, often over 50 ft. in spread, trunk 3-4 ft. in diam., covered with rough, furrowed, very dark bark 2-4 in. thick. Old trees on exposed headlands often distorted and bearing low, broad crowns. Needles rich, dark, glossy green, densely clothing the branches, persisting 3-5 yrs., borne 3 in a bundle (sometimes only 2). Staminate and pistillate cones produced on same tree. Staminate cones $\frac{1}{2}$ - $\frac{3}{4}$ in. long, borne 20-30 in a whorl just below the new needles of the season. Pistillate cones borne in whorls of 2-5 on the main axis or near the tips of lateral branches; each cone about $\frac{3}{4}$ in. long at time of pollination, and borne on a distinct stalk $\frac{1}{2}$ - $\frac{3}{4}$ in. long. The cones soon become deflexed, attain a size of 1 $\frac{1}{2}$ -2 in. the first season, mature the second autumn, but remain unopened upon the trees for many years. Mature cones are rich tan, 3-6 in. long, 2-4 in. thick, asymmetrical, the outer basal scales conspicuously swollen at the tip, but the small prickle on each usually weathers away. Seeds dark brown to almost black, about $\frac{1}{4}$ in. long, bearing a light tan wing about 1 in. long by $\frac{3}{8}$ in. wide. Cotyledons 5-8; in seedlings these become 1 $\frac{1}{2}$ -2 $\frac{1}{2}$ in. long and persist for several months. Juvenile leaves are solitary, conspicuously flattened, about 1 $\frac{1}{2}$ in. long.

The genus *Pinus* (ancient Latin name) consists of over 100 species widely distributed in the northern hemisphere. California has about 20 kinds, thus surpassing any other similar sized area of the world in richness of representatives.

Pinus radiata (the specific name meaning radiating, is apparently in reference to the clusters of cones) was described in 1836 by David Don, English botanist, based upon specimens collected at Monterey by Thomas Coulter, Irish botanist, who early collected in California and for whom *Pinus Coulteri* was named. *Pinus insignis*, published by Loudon in 1838, was also based upon specimens from Monterey, which had been obtained by David Douglas who collected in California from 1830-32. For many years this name was thought to be the legitimate one for this species. Don also published *P. tuberculata* in 1836, a species which has been regarded as synonymous with *P. radiata*. Hooker and Arnott proposed *P. californica* in 1841 based upon specimens from Monterey obtained on Capt. Beechey's Voyage. The materials upon which all of these species rest were deposited in England, but unfortunately, the cones and branches appear to have been separated or lost, thus preventing present day botanists from accurately checking upon these species.

The Monterey pine, as *Pinus radiata* is popularly known, once had a wide geographic distribution along the California coast. Today three groves are known. The first and best known is at Monterey. It occupies a belt over 20 miles long and extends inland in places for 5 or 6 miles. Most trees in this forest have medium or small cones without pronounced swollen enlargements at the ends of the scales. The second forest is to the north at Año Nuevo Pt., San Mateo Co., where the trees extend for several miles. There the trees have somewhat longer

needles and larger cones with heavier and larger swollen tips to the scales. The third forest is at Cambria, San Luis Obispo Co. Trees in this area also have long needles and large cones with swollen scales. Thus it appears that two distinctive types of *Pinus radiata* exist in nature, but due to the uncertainty of application of the four names mentioned in the previous paragraph, it is impossible to differentially apply them. In order to distinguish these forms of *Pinus radiata* we suggest using English locality names as follows: Monterey Pine; Año Nuevo Pine; and Cambria Pine.

Wood of the Monterey Pine is of no commercial value for lumber, although in early days it was used around Monterey. Nowadays a few trees are cut for fuel, but the native stands are mainly valued as landscape features. Horticulturally it is one of the world's most important pines.

Pinus radiata was early (1833) introduced into cultivation in England, somewhat later to Australia and since then to many other parts of the world. It thrives in mild coastal climates where the temperature does not drop below 20 or 25 degrees. In California the Monterey Pine has been planted more extensively than almost any other pine. Hundreds of acres of hills in the San Francisco Bay region are covered with plantings of this species. Many country roads are lined with windbreak rows, the individuals of which are often uniformly 40-60 ft. in height. Golden Gate Park in San Francisco owes much of its picturesqueness to the ubiquitous Monterey Pines. In southern California the trees are widely distributed and thrive near the coast, but are generally short-lived and unsatisfactory in interior districts.

Few other pines rival the Monterey in rapidity of growth. Our oldest plantings in the Garden were set out as small seedlings in 1929. Some of these are now well over 35 ft. high. One particularly fine specimen tree is now about 36 ft. high, has a spread of nearly 20 ft., and a trunk well over 12 in. in diam. at 4 ft. above the ground. We have grown trees from seeds collected at Monterey, Cambria and Año Nuevo Pt., but regard those from the latter localities as superior in that they consistently produce longer needles thus clothing the individual trees with about 20-25 percent more foliage. Wild trees of *Pinus radiata* mature at about 70 yrs., but remain alive many years thereafter. In cultivation maturity is at 35-40 yrs., and decadence follows rapidly. Albert Wilson (Distinctive Trees, Shrubs and Vines 112. 1938) records a Monterey Pine at Atherton, California, 22 yrs. old and 90 ft. high, thus demonstrating the rapidity of growth under ideal conditions.

Propagation of *Pinus radiata* is from seeds, which should be planted in outside seed beds in late fall or early spring. The seedlings can be left in the seed beds for two seasons and then planted out bare root. They may also be grown in nursery rows to larger size and balled or boxed for transplanting. When they are grown in containers care must be taken to avoid coiled roots. They thrive under various conditions of soil, slope and exposure, usually requiring little water when once established. Poorly drained sites should be avoided. It should also be remembered that this is a coastal species and that other pines are superior for interior and cold districts of California.

CARL B. WOLF.

RANCHO SANTA ANA BOTANIC GARDEN

Dedication of Garden Foundation to the Board of Trustees for the Rancho Santa Ana Botanic Garden of the Native Plants of California:

"THE NATURE, OBJECT AND PURPOSE OF THE INSTITUTION
HEREBY FOUNDED AND TO BE MAINTAINED HEREUNDER.

ITS NATURE: A botanic garden of the native plants of California, herbarium and botanical library, containing living and/or preserved specimens of trees, plants and flowers native to California, and literature relating thereto.

ITS OBJECT: The preservation and improvement of the property now transferred and such property as may hereafter be transferred to the Trustees for those who not only wish to enjoy, but to study, assembled in one accessible locality, native California plants; and for the advancement of science and education with reference to plant life indigenous to the State of California.

ITS PURPOSES: (a) An institution founded primarily for scientific research in the field of local botany.

(b) To preserve the native California flora, try to replenish the depleted supply of some of the rarest plants which are rapidly being exterminated, and bring together in a comparatively small area as complete a collection of the rich store of native California plants as can be grown in this southern section of the state, thereby promoting the general welfare of the people of the state by providing the means for encouraging and carrying on the above mentioned activities in said state and by doing such other things as may be necessary and desirable to carry out the objects hereof."

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